

Serial No.: 10/565,113  
Filed: January 16, 2006

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Complete set of claims

- 1.(currently amended) A fine pattern forming material comprising a water-soluble resin, a water-soluble crosslinking agent, a solvent consisting of water or a mixed solvent of water and a water-soluble organic solvent, and an amine compound which is at least one selected from the group of a polyallylamine derivative and a quaternary amine compound, and that pH value of the fine pattern forming material exceeds 7.0, further where the amino group of the polyallylamine is partially protected at least by one selected from the group of an alkyloxycarbonyl group, an aryloxycarbonyl group and an alkylcarbonyl group, and a where the quaternary amine compound is selected from a group of dimethylammonium salt, trimethylammonium salt, tetramethylammonium salt, dimethylethylbenzylammonium salt and N-methylpyridinium salt ~~and that pH value of the fine pattern forming material exceeds 7.0.~~
- 2.(previously amended) The fine pattern forming material according to claim 1 wherein the water-soluble resin is at least one selected from a group of a polyvinylalcohol derivative, a polyvinylpyrrolidone derivative and a polyacrylic acid derivative.
- 3.(previously amended) The fine pattern forming material according to claim 1, wherein the above amine compound is a polyallylamine derivative having the molecular weight of 1,000 to 10,000.
- 4.(currently amended) The fine pattern forming material according to claims 1 to 3 further comprising a surfactant selected from an anionic surfactant and a nonionic surfactant.

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5.(currently amended) The fine pattern forming material according to claim 4, wherein the above surfactant is at least one selected from the group of an anionic surfactant selected from a group of alkylsulfonate, alkylbenzene sulfonic acid and alkylbenzenesulfonate, ~~a cationic surfactant selected from a group of laurylpyridinium chloride and laurylmethylammonium chloride~~ and a nonionic surfactant selected from a group of polyoxyethylene octylether, polyoxyethylene laurylether and polyoxyethylene acetylenic glycolether.

6.(previously amended) A fine pattern forming method comprising a step of forming a resist pattern made of a photoresist on a substrate, a step wherein a coating layer is formed by applying the fine pattern forming material of claim 1 over the resist pattern, a step wherein the area neighboring to the resist pattern is crosslinked and/or cured by heating the resist pattern and the coated layer by a diffusion of an acid from the resist pattern, and a step wherein the coated layer is developed by water or a mixture of water and a water-soluble organic solvent after heating.

7.(previously presented) The fine pattern forming material according to claim 1 where water-soluble crosslinking agent is at least one selected from the group consisting of a melamine derivative and a urea derivative.

8.(previously presented) The fine pattern forming material according to claim 1 where organic solvent is at least one selected from a group of alcohols, ketones, esters, ethylene glycol monoalkylethers, ethylene glycol monoalkylether acetates, propylene glycol monoalkylethers, propylene glycol monoalkylether acetates, lactic esters, aromatic hydrocarbons, amides, lactones, aprotic polar solvents.

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9.(previously presented) The fine pattern forming material according to claim 1, further comprising a plasticizer.

10.(previously presented) The fine pattern forming material according to claim 4, further comprising a plasticizer.

11.(previously presented) The method of claim 6, where the curing temperature is in the range of about 90°C to about 130°C.

12(new). The fine pattern forming material according to claim 1, wherein the amine compound is a polyallylamine derivative.

13(new). The fine pattern forming material according to claim 1, wherein the amine compound is a quaternary amine compound selected from a group of dimethylammonium salt, trimethylammonium salt, tetramethylammonium salt, dimethylethylbenzylammonium salt and N-methylpyridinium salt.